

Response to Questions submitted on 12/12/2012 from NJDEP Bureau of Air Permits (BAP)

1. Will there be any engine(s) or power generating equipment to be used as part of the dredging operations? If so, please provide category *i.e., stationary or mobile/portable*, size (HP), model year and fuel type.

- The dredging unit will consist of a **mobile hydraulic excavator** equipped with an environmental clamshell bucket. The excavator will be secured to a flat deck barge so that all sediment removal is performed from the water.
- Specifications for a typical excavator used on the Hudson River (Komatsu 1250) are attached. The Komatsu 1250 has a **651 HP engine** but similar excavators (Liebherr 984) could have up to a **675 HP engine**. These are **examples**. The specific excavator model and age of equipment used at RM 10.9 will depend on what equipment the dredging contractor selects.
- The mobile excavator may use **low sulfur** (500 ppm) or **ultra-low sulfur** (15 ppm) **diesel fuel**.

2. What's the maximum length of time {hours}, amount {tons} and likely surface area {ft²} of dredge sediment that would be exposed on "X" (number of) barge(s) at any one time per day? Per week? *The PTE calculations assumed 1-day or 24-hrs of sediment exposure time.*

- **Maximum length of time sediment will be exposed per barge => 2 hours** during filling. After all the sediment is placed in the barge, the sediment is expected to be covered with water given that ~30% of the dredged material will be water. During staging and transport to stabilization facility, sediment will not be exposed
- **Estimated daily dredge production rate => 462 in-situ yd³/day**
- **Total volume of wet material removed per day => 660 yd³** assuming a bucket efficiency of 70% (*i.e.*, 30% excess water)
- **Tons wet sediment per barge => 231 wet tons** (220 yd³ x 0.7 x 1.5 wet tons per in-situ yd³)
- **Number of 250 yd³ barges utilized per day => 3**
- **Surface area per barge => 1000 ft²**
- 3 barges per day x 6 dredging days per week = 18 barges filled per week
- 231 wet tons per barge => 693 wet tons dredged per day (or 4,158 wet tons per week)
- 3 barge per day x 2 hours exposure per barge = 6 hours potential exposure to air per day from no more than a 1000 ft² surface area at any one time

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3. What's the maximum dredge sediment concentration of H₂S?

Hydrogen sulfide data associated with RM 10.9 Study Area and Removal Area sediments (cores 11B-0301 to 12A-0481, RM 10.65 to 11.24) were collected in the field with a multi-probe gas meter equipped with a hydrogen sulfide gas sensor. A total of 987 readings were obtained by passing the end of the meter along the air space just above each sediment core segment immediately after the core was split open. **The majority of these samples (99.1%) were non-detect for H₂S.** In only nine (9) sample events was H₂S detected, with 6 samples at 1 ppm, 1 at 2 ppm and 2 at 3 ppm. **The results is an overall average H₂S concentration in the air immediately adjacent to exposed RM 10.9 sediments at 0.014 ppm.**

4. What's the maximum duration {hours} of dredging operations projected for removing 37,908 tons of dredge sediment?

- The correct value for material to be removed is 27,000 tons. This is based on a conversion of 1.5 wet tons/in-situ yd³. A corrected PTE spreadsheet is attached.
- As stated earlier, it will take a maximum of 2 hours to fill each 250 yd³ barge.
- Assuming a need to remove 18,000 yd³ in-situ sediments, a dredge rate of 462 in-situ yd³/day, and 6 hours/day of dredging operations, this translates to 234 hours of dredging operations (18,000 yd³ ÷ 462 yd³/day X 6 hours dredge operations/ day).
- Please refer to the Estimated Dredge Production Rates Calculation provided in Appendix B of the RM 10.9 Pre-Final Design for details associated with the dredging operations.

5. Were there any other organic &/or heavy metal contaminants identified in the dredge sediments at or above detection limits, e.g. DDT, DDE, DDD, PAH, etc.?

All VOCs and SVOCs including PAHs that were detected are included in the PTE calculations. There are detections of TAL metals and of DDT, DDE and DDD. The TAL metals are very low for the RM 10.9 sediments and will be associated with particulate emissions. Particulate emissions were calculated in the PTE spreadsheet on tab "Particulate PTE Calcs". DDT, DDE and DDD were not included in the previous PTE calculations, however the average and maximum values of 2,4 DDT and 4,4 DDT were provided on the table comparing the Tierra Phase I project to RM 10.9 discussed in our meeting on November 29.